

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

SYNOPSYS, INC., a Delaware)	
corporation,)	
)	
Plaintiff,)	
)	
v.)	C.A. No. 05-701 (GMS)
)	
MAGMA DESIGN AUTOMATION,)	REDACTED VERSION
INC., a Delaware corporation,)	PUBLIC COPY
)	
Defendant.)	

PLAINTIFF SYNOPSYS, INC.'S OPENING CLAIM CONSTRUCTION BRIEF

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INTRODUCTION

This brief addresses the construction of claim terms in the certain of the patents asserted in this action by plaintiff Synopsys, Inc. (“Synopsys”) and defendant Magma Design Automation, Inc. (“Magma”): Synopsys’ U.S. Patent No. 6,192,508 (the “‘508 Patent”), and Magma’s U.S. Patent No. 6,505,328 (the “‘328 Patent”), U.S. Patent No. 6,519,745 (the “‘745 Patent”) and U.S. Patent No. 6,857,116 (the “‘116 Patent”). The parties have met and conferred together since exchanging Preliminary Claim Constructions and have reached agreement on the constructions for many terms, which can be found in Exhibit A to the Amended Final Joint Claim Chart. The constructions for 14 terms, however, remain in dispute.¹

Synopsys has proposed constructions for these terms that are true to the basic principles of claim construction set forth below in Section I(A) of the Argument, which contains a short discussion of the law governing claim construction. Synopsys’ proposed constructions are consistent with the intrinsic evidence found in the respective patent specifications, as well as with the file histories and accepted dictionary meanings. Synopsys has also supplied further extrinsic evidence, including an expert declaration, where appropriate to assist the Court. In contrast, the constructions proposed by Magma deviate from the intrinsic record and often read extraneous limitations into the plain meaning of the claims.

¹ Despite the parties’ progress in agreeing to the constructions of many claim terms, the breadth of the case remains sweeping as, in addition to the 15 claims in the ‘508 Patent that Synopsys contends Magma infringes, Magma asserts that Synopsys infringes a total of *111 claims* in its Patents.

GENERAL BACKGROUND OF THE TECHNOLOGY²

Integrated circuits (“ICs”) consist of tiny electronic circuitry fabricated on a silicon substrate. ICs are contained in such electronics equipment as telephones, cameras, computers and automobiles. ICs have become so complex that designers need powerful computer software to design a circuit layout. The design process for an IC has many stages, each of which requires different computer software. The electronic design automation (“EDA”) industry provides software tools for the various stages of the IC design process. Current electronics technology requires ICs that are small, fast and highly complex. Without EDA products, it would be too expensive, too time-consuming, or simply impossible for companies to design the complex ICs available in the market today.

The basic building blocks of an IC are called gates or cells. Gates are interconnected with each other by wires according to an IC design. Engineers use EDA software to perform IC design tasks such as the determination of what types of gates to use, where to place the gates, and how to connect the wires between the gates. IC design using EDA software includes the following steps: high level circuit design, physical synthesis and physical design, which in turn generally includes placement and routing.

Early in the design flow, a designer creates a *high-level circuit design* using a special coded language (*e.g.*, register transfer language), which specifies what the circuit needs to do. This high-level design does not describe what gates are to be used or how they should be connected. *Logic synthesis* converts this high-level circuit description into a more detailed electronic circuit description, such as a “netlist,” which the parties have jointly defined for the

² See Exhibit A, Declaration of David Harris, Ph.D. in Support of Synopsys’ Opening Claim Construction Brief, ¶¶ 12-29, for support and further background information.

purpose of the patents at issue as “a description of the connections between integrated circuit elements.” *Physical design* is the process of deciding the physical dimensions and locations of the gates and of the wires that connect them (“place and route”). The physical design process creates a “layout,” which is a detailed blueprint describing the actual physical dimensions of the circuit elements (*e.g.*, gates and wires) on the chip. At the end of the design process, the layout can be used to manufacture the chip.

ARGUMENT

I. CLAIM CONSTRUCTION STANDARDS

A. General Standards.

The claims of a patent define the invention. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (*citing* Markman v. Westview Instruments, Inc., 52 F.3d 967, 980 (Fed. Cir. 1995) (the claims rather than the written description part of the specification define the scope of the invention)). Claim construction begins with an analysis of the intrinsic evidence, namely the patent claims themselves, the patent specification and the prosecution history. Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed. Cir. 2003). Indeed, “the claims, specification and file history . . . constitute the public record of the patentee’s claim, a record on which the public is entitled to rely.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996). Unless claim construction is founded on the intrinsic evidence, the public notice function of patents will be undermined. Phillips, 415 F.3d at 1319.

The words of a claim “are generally given their ordinary and customary meaning.” Id., 415 F.3d at 1312 (*quoting* Vitronics, 90 F.3d at 1582). The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art. Phillips, 415 F.3d at 1313. In addition, the claims themselves can provide substantial

guidance as to the meaning of particular claim terms. Id. at 1314 (*citing Vitronics*, 90 F.3d at 1582; *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003) (“the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms.”)).

When the ordinary and customary meaning does not apply, the patent specification is the “single best guide to the meaning of a disputed term.” Phillips, 415 F.3d at 1315 (*quoting Vitronics*, 90 F.3d at 1582). This doctrine recognizes that a “patent applicant may consistently and clearly use a term in a manner either more or less expansive than its general usage in the relevant art, thereby expanding or limiting the scope of the term in the context of the patent claims.” Alloc., Inc. v. Int’l Trade Comm’n, 342 F.3d 1361, 1368 (Fed. Cir. 2003). Accordingly, claims “must be construed so as to be consistent with the specification of which they are a part.” Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1371 (Fed. Cir. 2003). Consistent with these principles, the Federal Circuit has long recognized that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. Phillips, 415 F.3d at 1316. In such cases, the inventor's lexicography governs. Id. (citations omitted).

In addition to consulting the specification, the Federal Circuit mandates that a court “should also consider the patent's prosecution history, if it is in evidence” as part of the “intrinsic evidence.” Phillips, 415 F.3d at 1313, 1317 (citations omitted). The prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention, and whether the inventor limited the invention in the course of prosecution, which would make the claim scope narrower than it would otherwise be. Id. at 1317; Springs Window Fashions LP v. Novo Indus., L.P., 323 F.3d 989, 994 (Fed. Cir. 2003) (“It

is well understood that “the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution”) (citations omitted).

Although the Federal Circuit has emphasized the importance of intrinsic evidence in claim construction, it has also authorized district courts to rely on extrinsic evidence, which ““consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.”” Phillips, 415 F.3d at 1317 (citing Markman, 52 F.3d at 980). However, the Federal Circuit has warned that while extrinsic evidence can shed useful light on the relevant art, it is less significant than the intrinsic record in determining legally operative meaning of patent claim language. Id. The Federal Circuit reasoned that extrinsic evidence in general is “less reliable than the patent and its prosecution history in determining how to read claim terms.” Id. at 1318.

B. Claim Construction Standards for Means-Plus-Function Claims.

The Patent Laws provide that an element in a claim “may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6 (2006). In construing means-plus-function claim limitations, a court must first define the particular function claimed. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed. Cir. 2001). Thereafter, the court must identify “the corresponding structure, material, or acts described in the specification.” Id.

Typically, the relevant function is recited in the claim after the prepositional link “for,” which ties the means to the function. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999) (section 112 “does not permit limitation of a means-plus-

function claim by adopting a function different from that explicitly recited in the claim.”) However, a “wherein” clause may further describe the claimed function. See, e.g., Intel Corp. v. Broadcom Corp., 172 F. Supp. 2d 478, 499 (D. Del., 2001).

The scope of coverage of the limitation cannot be measured until the structure corresponding to the claimed function in a means-plus-function limitation is identified and considered. Budde, 250 F.3d at 1376. In a means-plus-function claim where the disclosed structure is a computer programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the structure is a special purpose computer programmed to perform the disclosed algorithm. WMS Gaming Inc. v. Int’l Game Tech., 184 F.3d 1339, 1349 (Fed. Cir. 1999). The disclosure of the algorithm in the specification may take many forms, such as a table, a flow chart or textually disclosed steps. Id. at 1348.

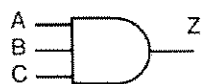
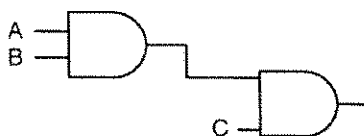
II. CONSTRUCTION OF TERMS IN THE ‘508 PATENT

A. Overview of the Technology of the ‘508 Patent.

One design issue that IC designers face is “congestion” – the number of wires that cross a certain area of the layout. Exhibit A, Declaration of David Harris, Ph.D. In Support Synopsys, Inc.’s Opening Claim Construction Brief (“Harris Decl.”), ¶ 33. A circuit design with too much congestion cannot be routed because there is no room for the wires. Id. Because of the need to route wires between integrated circuit elements, designers try to minimize congestion. Id.

The ‘508 Patent provides a solution for relieving congestion by modifying the logic. Harris Decl., ¶¶ 38-40. There are two general ways that logic modification can relieve congestion. Id. The logic modifications can reduce the number of wires in the circuit, directly reducing congestion, or they can make the circuit faster. Id. If the circuit is faster, the circuit

elements can be moved further apart while still meeting the speed requirements. Id. Spreading the gates spreads the wires over a larger area, reducing congestion. Id. After the logic modifications are made, the placement is refined to reflect the modifications. Id. Figures 6A and 6B from the '508 Patent illustrate very generally how this works. Id.

**FIG. 6A****FIG. 6B**

Although Figure 6B reflects logic modifications to the layout in Figure 6A, the two Figures reflect the same functional logic operation.

B. “Bins”: The Patent Defines the Term.

'508 Claim Language	Synopsis's Proposed Construction	Magma's Proposed Construction
bins (Claims 1-18)	one or more regions.	more than one bin.

The parties dispute the proper construction of the terms “bin,” “bins,” and “selected bins.” See Amended Final Joint Claim Chart (“AJCC”), D.I. 140, Exh. B, pp. 1-3, 12-13. In reality, there is only one disagreement that applies to all three of these terms – whether the Court should rely on the clear definition set out by the Applicants in the claims and in the prosecution history: namely, that “bins” means “one or more regions.” Synopsis proposes that the Applicant’s clear definition governs the construction. Magma asks the Court to ignore this definition and rely instead on extrinsic evidence.

1. The Applicants Properly Acted As Their Own Lexicographers In Defining “Bins” To Mean “One Or More Regions”.

The Applicants clearly defined “bins” to mean “one or more regions.” 1 A-8 (6:46-49).³ This definition appears in the preambles of all the independent claims of the ‘508 Patent, which recite “to facilitate placement of circuit elements within **one or more regions called bins.**” 1 A-8 - A-9 (claims 1, 12 and 15-18) (emphasis added).⁴ This language was added by amendment during prosecution of the ‘508 Patent, and it was accompanied by a clear statement that “[b]y the present amendment, the claims would be **amended to account for the possibility of performing the present invention using only a single bin** (*i.e.*, one encompassing the entire integrated circuit) as opposed to multiple bins.” 24 A-442 – A-445 (emphasis added). The Examiner reviewed the amendments and the accompanying statements in the file wrapper, and allowed the claims. 24 A-448.

The Applicants acted properly as their own lexicographers in defining “bins” to mean “one or more regions.” The Federal Circuit has long held that inventors may act as their own lexicographers as long as they define terms with reasonable clarity, deliberateness, and precision. Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed. Cir. 2004) (citations

³ Pursuant to D. Del. LR 7.1.3(a)(C), all citations are to the Joint Appendix of Intrinsic and Extrinsic Evidence (the “JA”). Citations are in the following format: “[Tab#] A-[page#].” Thus, a citation to “3 A-100” would refer to tab 3, page A-100. Patent citations are by column and line number, in the following format: “[Tab#] A-[page#] at [column]:[line].” The parties will file the Joint Appendix with their Answering Briefs on November 17, 2006.

⁴ The preamble language “one or more regions called bins” is limiting because it is necessary to give meaning to all of the claims of the ‘508 Patent. Catalina Mktg. Int’l Inc. v. Coolsavings.com, Inc., 289 F.3d 801, 808 (Fed. Cir. 2002) (citations omitted).

omitted). Such a definition may appear in the written description or in the prosecution history. Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1325 (Fed. Cir. 2002).

The preamble language “one or more regions called bins” clearly conveys the definition of “bins” to mean “one or more regions.” This act of lexicography is clear, deliberate and precise. See Golight, 355 F.3d at 1332. Even if this claim language were to leave any question about the definition of “bins,” the file history erases all doubt where the Applicants stated that the claims cover “using only a single bin (*i.e.*, one encompassing the entire integrated circuit) as opposed to multiple bins.” 24 A-445. The Applicants’ express definition of “bins” as “one or more regions” could hardly have been stated any more clearly and precisely. Id.

The Examiner agreed that the Specification of the ’508 Patent supports the definition of “bins” as “one or more regions.” 24 A-448. While the Specification does not use the term “regions,” it uses the term “area” many times in connection with the “bins.” *See, e.g.*, 1 A-8 (5:63-66) (referring to “the area of each bin”). The term “region” is synonymous with “area.” 4 A-21 (The American Heritage Dictionary of the English Language, p. 1095 (William Morris, ed., Houghton Mifflin Co., 1976) (defining “region” as “an area”)). While the Specification describes the use of multiple bins, it also conveys to a person of ordinary skill in the art that the invention may be practiced “using only a single bin (*i.e.*, one encompassing the entire integrated circuit) as opposed to multiple bins.” The Specification describes use of the invention with multiple bins as just “an exemplary embodiment”:

The present invention may be used in conjunction with an electronic design automation placement tool. In accordance with an exemplary embodiment of one such placement tool, at each stage in cell placement, the cells are partitioned into a number of bins.

1 A-7 (3:31-35).

2. The Fact That The Term “Bins” Might Be Considered Plural In Other Contexts Does Not Negate The Applicant’s Lexicography.

Courts do not always construe the plural to mean multiple. For example, in Interactive Gift Express v. Compuserve, Inc., 256 F.3d 1323 (Fed. Cir. 2001), the Federal Circuit construed a plural term to include the singular. 256 F.3d 1323, 1334 (Fed. Cir. 2001) (determining that the claim language “a plurality of blank material objects” includes “one material object”). Additionally, the Court of Federal Claims has held that the phrase “a form set” can include one sheet, and does not require more. Paymaster Techs., Inc. v. U.S., 54 Fed. Cl. 579, 585 (Fed. Cl. 2002) (“[a]lthough the court agrees with defendant’s proffered definition of ‘set’ as that which connotes ‘more than one thing of the same kind,’ the court holds that the patentee has redefined that term in the given claim.”). In the ‘508 Patent, the Applicants defined “bins” to mean “one or more regions.” The Applicants’ lexicography therefore governs construction of this term. Phillips, 415 F.3d at 1315 (citations omitted).

3. Magma’s Definition Of “Bin” Ignores The Intrinsic Record In Favor Of Unreliable Extrinsic Evidence.

Magma rejects the preamble definition of “bins,” as well as the Applicants’ statements during prosecution, and argues that a “bin” means “a rectangular (or square) portion of an integrated circuit bounded by gridlines.” AJCC, D.I. 140, Exh. B, p. 3. In so doing, Magma rejects the intrinsic record, and relies solely on extrinsic evidence, including a text book and several unrelated patents. Id. The words “rectangular,” “square,” and “gridlines” appear nowhere in the intrinsic record. The Federal Circuit has warned that while extrinsic evidence can shed useful light on the relevant art, it is less significant than the intrinsic record in determining the legally operative meaning of patent claim language. Phillips, 415 F.3d at 1317. Magma cannot explain how the extrinsic evidence it offers for construction of the term “bin” somehow

trumps the clear statements in the prosecution history that “bins” means “one or more regions.” Therefore, the Court should construe the terms “bin” and “bins” in accordance with the explicit definition “one or more regions called bins” as recited in the claim preambles. Magma’s reliance on extrinsic evidence cannot dispel the clear definition set forth by the Applicants in the intrinsic record.

4. The Court’s Construction Of “Bins” Should
Resolve All Disputes Concerning Other Phrases
Using This Term.

The dispute regarding construction of the term “selected bins” raises no issues beyond those discussed above in connection with the term “bins.” In proposing constructions for these terms, both parties have simply inserted their respective definitions of “bins” into the phrases. AJCC, D.I. 140, Exh. B, pp. 12-13. Synopsys has proposed that “selected bins” means “one or more selected regions.” Id.

Magma’s proposed construction for these terms is similarly derived from its own proposed construction of “bins” (*i.e.*, “more than one bin”). Id. Therefore, if the Court adopts Synopsys’ proposed construction of “bins,” it should adopt Synopsys’ constructions of these additional phrases for the same reasons.

C. “Limits”: Means “Upper Bounds” And Magma’s Proposed
Construction Of “*More Than One* Upper Bound” Is
Incorrect.

‘508 Claim Language	Synopsys’ Proposed Construction	Magma’s Proposed Construction
limits (Claims 1-18)	upper bounds.	more than one upper bound.

Similar to the dispute on “bins,” the dispute on “limits” is whether the scope of this term includes the singular (as Synopsys contends) or whether it is strictly limited to the

plural (as Magma argues). Synopsys' proposed construction is correct because it is consistent with the plain meaning, and consistent with the context of the claims and the Specification. On the other hand, Magma's proposed construction must be rejected, most importantly, because it contradicts the Specification.

1. Synopsys' Proposed Construction Of "Limits" Is Consistent With The Plain Meaning As Well As The Context Of The Claim Language.

The term "limits" is used in the claims of the '508 Patent in the following phrase:

subject to ***limits on the increase in area*** of integrated circuit elements ***within a bin***, performing logic modifications within selected bins of the integrated circuit design to allow congestion of the placement to be improved.

1 A-9 (8:54-58) (emphasis added). In the context of the above claim language, the term "limits" relates to an "increase in area." The context of this term in the claim itself provides substantial guidance as to the meaning of "limits." See, e.g., Phillips, 415 F.3d at 1317 (citing Vitronics, 90 F.3d at 1582). Of course, an "area" is two-dimensional in nature. In plain and ordinary English, the term "limits" is commonly used to characterize one boundary surrounding an area. 5 A-26 (The American Heritage Dictionary of the English Language, p. 758) ("limit ... Usually plural. The boundary surrounding a specific area; bounds; within the city limits.") For example, the phrase "city limits" is commonly used to define a single boundary surrounding the area of a city. Id.

Synopsys' proposed construction of "limits" – as meaning "upper bounds" – includes the concept of a single boundary on the "increase in area of integrated circuit elements within a bin." Magma's proposed construction of "limits" – as "more than one upper bound" – is misleading because it would require that more than one boundary be placed on the "increase in

area of integrated circuit elements within a bin.” As explained below, Magma’s interpretation of “limits” is not supported in the Specification of the ‘508 Patent.

2. Synopsys’ Proposed Construction Of “Limits” Is
Consistent With The Specification Of The ‘508
Patent, Whereas Magma’s Construction Contradicts
the Specification.

As discussed above, the term “limits” appears in the claims in the phrase “subject to limits on the increase in area of integrated circuit elements within a bin” 1 A-9 (8:54-58). Support for this claim language is found in the Specification of the ‘508 Patent as follows:

Monitoring of the area used in order to preserve the feasibility of the placement is done by ***placing an upper bound on the area of each bin***. The proposed logic optimizations are only allowed to increase the bin area to the upper bound. Bounding the increase in bin area guarantees convergence of the placement process.”

1 A-8 (5:58-6:2) (emphasis added). The Federal Circuit has long held that claims must be construed so as to be consistent with the specification of which they are a part. Phillips, 415 F.3d at 1315 (citations omitted).

Synopsys’ proposed construction of “limits” as meaning “upper bounds” is taken directly from the above cited portion of the Specification, which teaches the use of one upper bound on the area of each bin (*i.e.*, region) as the preferred embodiment. Synopsys’ proposed construction of “limits” as meaning “upper bounds” covers all embodiments described in the Specification, including the preferred embodiment wherein one upper bound is described as being placed on the area of each bin (*i.e.*, region). 1 A-8 (5:58-6:2).

Magma’s proposed construction of “limits” as meaning “more than one upper bound” does not cover the preferred embodiment in which one upper bound is described as being placed on the area of each bin (*i.e.*, region). “A claim construction that excludes a preferred embodiment is ‘rarely, if ever, correct.’” SanDisk Corp. v. Memorex Prods., Inc., 415 F.3d

1278, 1285 (Fed. Cir. 2005) (*quoting Vitronics*, 90 F.3d at 1583). Therefore, Magma's proposed construction of "limits" should be firmly rejected because it does not cover the preferred embodiment.

Magma's proposed construction of "limits" actually contradicts the teaching of the Specification of the '508 Patent, wherein one upper bound is placed on the area of each bin (*i.e.*, region). 1 A-8 (5:58-6:2). Again, claims must be construed so as to be consistent with the specification, of which they are a part. *Phillips*, 415 F.3d at 1315 (citations omitted). Therefore, Magma's proposed construction of "limits" cannot be correct because it is inconsistent the teaching of the Specification of the '508 Patent.

D. The Court Should Reject Magma's Attempt to Import
"Purpose" Limitations Into Three Different Claim Terms.

Magma has proposed that three of the disputed claim terms of the '508 Patent should be construed to require "the purpose of reducing congestion." AJCC, D.I. 140, Exh. B, pp. 3, 11, and 13. Synopsys opposes this attempt by Magma to improperly read a limitation into the claims. Synopsys has proposed alternative constructions that properly interpret the claim language without reading in limitations. The terms at issue, along with the parties' proposed constructions are listed below.

'508 Claim Language	Synopsys' Proposed Construction	Magma's Proposed Construction
to allow congestion of the placement to be improved (Claims 1-11, 15, 17)	to provide opportunities for placement to improve congestion. (AJCC, Exh. B, p. 13)	<i>with the purpose of reducing congestion</i> of the placement. (AJCC, Exh. B, p. 13) (Emphasis Added).
in an attempt to improve congestion by taking advantage of the logic modifications (Claims 2-11, 13, 14)	to relieve congestion where opportunities are provided by logic modifications. (AJCC, Exh. B, p. 3.)	<i>with the purpose of reducing congestion</i> by taking advantage of more than one logic modification. (AJCC, Exh. B, p. 3) (Emphasis Added).

'508 Claim Language	Synopsis's Proposed Construction	Magma's Proposed Construction
reducing constraints on a subsequent placement step (Claims 12-14, 16, 18)	reducing one or more constraints on a subsequent placement step. (AJCC, Exh. B, p.11)	reducing more than one constraint on a subsequent placement step <i>with the purpose of reducing congestion</i> during the subsequent placement step. (AJCC, Exh. B, p.11) (Emphasis Added).

As indicated above, a significant difference between the opposing constructions is that Magma's constructions read in the limitation "with the purpose of reducing congestion," whereas Synopsis' proposed constructions do not. AJCC, D.I. 140, Exh. B, pp. 3, 11, and 13. As explained below, Synopsis' proposed constructions provide interpretations of the claim language in light of the Specification, whereas Magma's proposed constructions mainly repeat the claim language and add the phrase "with the purpose of reducing congestion."

1. Synopsis' Proposed Constructions Properly Interpret The Claim Language In The Context Of The Specification.

These disputed phrases appear in the context of the claims of the '508 Patent as follows:

- "subject to limits on the increase in area of integrated circuit elements within a bin, performing logic modifications within selected bins of the integrated circuit design to allow congestion of the placement to be improved" (1 A-8) (claim 1);
- "performing placement refinement in an attempt to improve congestion by taking advantage of the logic modifications" (1 A-8) (claim 2); and
- "wherein the logic modifications improve timing of selected nets belonging to the selected bins, reducing constraints on a subsequent placement step." (1 A-9) (claim 12).

1 A-8 - A-9 (emphasis added on disputed language).

Viewed in context, it is apparent that the disputed language characterizes the potential results of performing certain steps (*i.e.*, "logic modifications" and "placement

refinement”), rather than the “purpose” of performing them. All of the above claim steps follow from the Applicants’ recognition that in certain situations, the combination of two key steps – “logic modifications” and “placement refinement” – may result in the improvement of congestion. Importantly, the Specification of the ‘508 Patent teaches that:

The second method involves **modifying the topology of the circuit** by adding gates while maintaining the functionality, such that the added **gates can then be moved by the placement steps to relieve congestion**. An important aspect of the optimizations, specifically directed towards **helping placement relieve congestion**, is the ability to undo modifications if placement does not actually use the modifications.

1 A-6 (2:43-52) (emphasis added). The Specification also states that:

For many of the congestion relieving logic synthesis methods proposed as part of placement, there are two important issues that this invention addresses. In most cases, logic synthesis cannot itself improve congestion, but rather only provide opportunities for placement to improve congestion, it is important to track which of these opportunities are actually used.

1 A-8 (5: 45-57) (emphasis added).

These portions of the Specification clearly teach that “logic modifications” alone usually cannot improve congestion, but rather only provide opportunities for placement to improve congestion. These portions of the Specification provide the basis for Synopsys’ proposed constructions of “to allow congestion of the placement to be improved” as meaning “to provide opportunities for placement to improve congestion.” They also provide the basis for Synopsys’ proposed construction of “in an attempt to improve congestion by taking advantage of the logic modifications” as meaning “to relieve congestion where opportunities are provided by logic modifications.”

2. Magma's Proposed Constructions Are Inconsistent With The Specification.

Magma's proposed constructions require that the steps of "performing logic modification" and "placement refinement" both have to be performed specifically "with the purpose of reducing congestion." AJCC, D.I. 140, Exh. B, pp. 3, 11 and 13. This requirement is not supported by the Specification, which teaches that "logic modifications" are performed to provide opportunities for placement to improve congestion, and not with the purpose of improving congestion. 1 A-8 (5: 45-57) (stating that "logic synthesis cannot itself improve congestion, but rather only provide opportunities for placement to improve congestion"). It is the combined steps of "logic modifications" and "placement refinement" that the Specification prescribes for relieving congestion. Id. The Specification does not teach that either of the steps alone can relieve congestion. Id. Therefore, the Specification certainly does not support Magma's contention that each of the individual steps needs to be performed "with the purpose of reducing congestion." Id.

Magma's proposed constructions improperly read a limitation into the claims (*i.e.*, "with the purpose of reducing congestion"). The Federal Circuit has consistently warned against this approach to claim construction. Arlington Indus., Inc. v. Bridgeport Fittings, Inc., 345 F.3d 1318, 1327 (Fed. Cir. 2003) (citing Amgen, Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1325 (Fed. Cir. 2003) ("courts must take extreme care when ascertaining the proper scope of the claims, lest they simultaneously import into the claims limitations that were unintended by the patentee.")). In Phillips, the Federal Circuit recognized that the distinction between using the specification to interpret the meaning of a claim, and importing limitations from the specification into the claim can be difficult to apply in practice. Phillips, 415 F.3d at 1323. However, the Federal Circuit has provided guidance in the past, explaining that "[a]dvantages described in the

body of the specification, if not included in the claims, are not per se limitations to the claimed invention.” Vehicular Tech. Corp. v. Titan Wheel Intern., Inc., 141 F.3d 1084, 1096 (Fed. Cir. 1998) (*citing* Applied Mat., Inc. v. Advanced Semiconductor Mat. Am., Inc., 98 F.3d 1563, 1574 (Fed. Cir. 1996) (only when the inventor's purpose is included in the claims does the purpose serve as “a limitation of the claimed invention [that] should be met either literally or equivalently in order to satisfy the criteria of infringement”)).

In the case of the ‘508 Patent, none of the claim terms include any language pertaining to a “purpose.” By reading this limitation into the claims, Magma seeks to imply that any accused devices must perform the recited steps “with the purpose of reducing congestion.” If Magma’s constructions were adopted, the claims would be vague and ambiguous because computer programs do not execute steps or processes with any “purpose” or intent. Rather, computer programs simply execute steps or do not do so.

E. “Means For Performing An Initial Placement”: The ‘508 Patent Describes the Corresponding Structure.

‘508 Claim Language	Synopsis’ Proposal	Magma’s Proposal
means for performing an initial placement of integrated circuit elements within bins on the design layout (Claims 17-18)	The corresponding structure is: <ul style="list-style-type: none"> ○ an electronic design automation tool (1 A-7) (3:30-31); ○ a computer executing an algorithm for placing cells in one or more regions using a placement tool that partitions cells into one or more regions at each stage of the placement (1 A-7) (3:31-35); and ○ a computer executing an algorithm for placing cells in accordance with a placement algorithm that is limited by the topology of the circuit (1 A-7) (4:23-29). 	The corresponding structure is: [No corresponding structure is disclosed.]

The phrase “means for performing an initial placement of integrated circuit elements within bins on the design layout” appears in claims 17 and 18 of the ‘508 Patent. 1 A-9 (8:29-63). The parties agree that construction of this phrase is governed by 35 U.S.C. § 112, ¶ 6, and agree that the claimed function is “performing an initial placement of integrated circuit elements within bins on the design layout.” AJCC, D.I. 140, Exh. B, pp. 8-10. The parties’ only dispute concerns the phrase’s disclosed corresponding structure. While Synopsys has identified the corresponding structure described in the Specification, Magma argues that there is no corresponding structure disclosed. Id.

1. The Specification Of The ‘508 Patent Adequately Describes Several Corresponding Structures.

Synopsys has identified the following structure corresponding to the “means for performing an initial placement of integrated circuit elements within bins on the design layout”:

- an electronic design automation tool (1 A-7) (3:30-31);
- a computer for executing an algorithm for placing cells in one or more regions using a placement tool that partitions cells into one or more regions at each stage of the placement (1 A-7) (3:31-35); and
- a computer executing an algorithm for placing cells in accordance with a placement algorithm that is limited by the topology of the circuit (1 A-7) (4:23-29).

As support for the above defined structures, Synopsys points to portions of the specification of the ‘508 Patent at column 3, lines 31-35 and column 4, lines 23-29. 1 A-7. These portions of the specification are clearly linked to the claimed function of “performing an initial placement of integrated circuit elements within bins on the design layout,” as required under § 112, ¶ 6. See, e.g., B. Braun Med. v. Abbott Lab., 124 F.3d 1419, 1424 (Fed. Cir. 1997) (holding that the structure disclosed in the specification qualifies as “corresponding” structure

only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim). First, the '508 Patent states:

“The present invention may be used in conjunction with *an electronic design automation placement tool*. In accordance with an exemplary embodiment of one such placement tool, at each stage in cell placement, the cells are *partitioned* into a number of bins.”

1 A-7 (3:31-35) (emphasis added).

The above passage clearly conveys to a person of ordinary skill in the art that an EDA placement tool may be used to perform the claimed function of “performing an initial placement of integrated circuit elements within bins on the design layout.” Harris Decl., ¶¶ 49-51. Such tools were commercially available when the '508 Patent application was filed and they remain available today. *Id.*, ¶ 51. In fact, Synopsys and Magma both sell EDA placement tools. *Id.* The Federal Circuit has held that a simple reference to a “commercially available unit” may be understood by one skilled in the art as structure capable of performing a claimed function clearly linked to the unit. *Budde*, 250 F.3d at 1381-82 (holding that a means-plus-function claim limitation sufficiently disclosed structure capable of performing the function of “measuring vacuum in the intake manifold” by identifying the corresponding structure as a “commercially available” vacuum sensor). The description in the '508 Patent of “an electronic design automation placement tool” is no less clear and detailed than the description of a “commercially available” sensor.

In addition, the Specification explains that “[i]n accordance with an *exemplary embodiment of one such placement tool*, at each stage in cell placement, the *cells are partitioned* into a number of bins.” 1 A-7 (3:31-35) (emphasis added). This reference to cells being partitioned would also be understood by one of ordinary skill in the art to be a specific algorithm for performing the claimed function of “performing an initial placement of integrated

circuit elements within bins on the design layout.” Harris Decl., ¶¶ 52-54. A person of ordinary skill in the art would understand that the act of “partitioning” is much more specific than the claimed function. Id.

2. Magma Cannot Prove By Clear And Convincing Evidence That Claims 17 And 18 Are Invalid.

Magma denies that the Specification of the ‘508 Patent describes any corresponding structure for the “means for performing an initial placement of integrated circuit elements within bins on the design layout.” AJCC, D.I. 140, Exh. B, pp. 8-10. In making this argument, Magma is apparently asking the Court to find claims 17 and 18 invalid because a failure to disclose any structure corresponding to a means-plus-function claim element results in the claim being indefinite. Budde, 250 F.3d at 1376 (citations omitted). Because the claims of a patent are afforded a statutory presumption of validity, overcoming this presumption requires proof by clear and convincing evidence. Id. Thus, a challenge to a means-plus-function limitation as lacking structural support requires a finding, by clear and convincing evidence, that the specification lacks disclosure of structure sufficient to be understood by one skilled in the art as being adequate to perform the recited function. Id.⁵

Whether or not the specification adequately sets forth structure corresponding to the claimed function necessitates consideration from the viewpoint of one skilled in the art.

⁵ Moreover, arguments concerning invalidity are inappropriate during the claim construction phase. Pharmastem Therapeutics, Inc. v. Viacell, Inc., 2003 WL 124149, *1 (D. Del. 2003) (“While the court recognizes that a determination of indefiniteness is necessarily intertwined to some degree with claim construction, it is clear that the court must first attempt to determine what a claim means before it can determine whether the claim is invalid for indefiniteness.”); see also Ampex Corp. v. Eastman Kodak Co., 2006 WL 3042144, *1 (D. Del. 2006) (“The validity of a claim is not an issue of claim construction, but should have been addressed in a motion for summary judgment.”).

Budde, 250 F.3d at 1376. Thus far, Magma has not offered any evidence that a person of ordinary skill in the art would view the structures disclosed in the Specification of the '508 Patent as insufficient to practice the function of "performing an initial placement of integrated circuit elements within bins on the design layout." Accordingly, Magma's invalidity argument fails.

F. "Means For Calculating Congestion Of The Initial Placement": The '508 Patent Describes More Than One Corresponding Structure.

'508 Claim Language	Synopsis' Proposal	Magma's Proposal
means for calculating congestion of the initial placement (Claims 17-18)	The corresponding structure is a computer executing algorithms for: <ul style="list-style-type: none"> ○ calculating congestion for the initial placement using interconnection models for interconnects between bins or within bins (1 A-7) (3:35-38); or ○ calculating congestion for the initial placement in accordance with an algorithm that calculates the total number of pins in the bin divided by the total routable area in the bin (1 A-7) (4:61-67). 	The corresponding structure is a computer executing algorithms for: calculating the total number of pins in the bin divided by the total routable area in the bin.

The phrase "means for calculating congestion of the initial placement" appears in claims 17 and 18 of the '508 Patent. 1 A-9 (8:30-62). The parties agree that construction of this element is governed by 35 U.S.C. § 112, ¶ 6, and agree that the claimed function is "calculating congestion of the initial placement." AJCC, D.I. 140, Exh. B, pp. 7-8. To properly capture all of the alternative structures corresponding to the claimed function, Synopsis proposes that the corresponding structure be construed as a computer executing algorithms for:

- (1) calculating congestion for the initial placement in accordance with an algorithm that calculates the total number of pins in the bin divided by the total routable area in the bin (1 A-7) (4:61-67); and

- (2) calculating congestion for the initial placement using interconnection models for interconnects between bins or within bins (1 A-7) (3:35-38).

AJCC, D.I. 140, Exh. B, pp. 7-8.

Magma agrees that the first above-identified structure corresponds with the “means for calculating congestion of the initial placement.” *Id.* The only dispute concerning this phrase is whether or not the second above-identified structure (hereinafter referred to as the “Interconnect Model Algorithm”) also corresponds with this claim limitation.

The Specification of the ‘508 Patent links the Interconnect Model Algorithm to the claimed function of “calculating congestion of the initial placement” where it states that “[i]nterconnection models for interconnects between bins and within bins provide both delay estimates for each interconnect in the circuit, as well as congestion estimates for each bin in the circuit.” Harris Decl., ¶¶ 55-58 (citing 1 A-7 (3:35-38)). Based on this portion of the Specification, Synopsys asserts that the Specification clearly conveys to a person of ordinary skill in the art that the claimed function of “calculating congestion of the initial placement” can be achieved using the Interconnect Model Algorithm. *Id.*

Magma has provided no explanation for adopting only one of the two disclosed structures corresponding with the “means for calculating congestion of the initial placement.” There is no authority for limiting a means-plus-function element to having only one corresponding structure. Proper application of § 112, ¶ 6 generally reads the claim element to embrace distinct and alternative described structures for performing the claimed function. Creo Prods., Inc. v. Presstek, Inc., 305 F.3d 1337, 1346 (Fed. Cir. 2002). Specifically, the disclosed structure includes that which is described in a patent specification, including any alternative structures identified. *Id.* (citing Ishida Co. v. Taylor, 221 F.3d 1310, 1316 (Fed. Cir. 2000)). To capture all of the alternative structures identified in the ‘508 Patent for the “means for calculating

congestion of the initial placement” element, the Court should adopt Synopsys’ proposed construction.

III. CONSTRUCTION OF TERMS IN THE ‘745 PATENT

A. Overview of the Technology of the ‘745 Patent.

IC designers often face the issue of capacitance in the wires of the integrated circuit. Harris Decl., ¶ 41. Capacitance causes the transmission of electrical signals through the wires to be delayed. Id. Capacitance occurs when wires are close together – the closer the wires, the greater the capacitance. Id. It is important for IC designers to have a good estimate of how much capacitance is in a circuit so they can calculate the time it will take signals to travel from one part of the circuit to another. Id.

The alleged invention of the ‘745 Patent is a method of estimating capacitance based on the amount of congestion in the circuit. Harris Decl., ¶ 42. Integrated circuits are often divided conceptually into a grid of imaginary rectangular regions, which are used in placing and routing the circuit elements. Id. When many wires run through a region, the region is said to be congested, and the wires are packed closely together. Id. This also means that the capacitance is large. Because capacitance is related to congestion, the patent says that the congestion can be used to estimate the capacitance. Id.

B. “Bucket”: Synopsys’ Construction Properly Includes the Word “Placement,” While Magma’s Proposed Construction Improperly Omits It.

‘745 Claim Language	Synopsys’ Proposed Construction	Magma’s Proposed Construction
Bucket (Claims 1-8)	rectangular, coarse placement region within the chip’s core area.	a coarse, rectangular region within the chip’s core area.

The term “bucket” is expressly recited in claim 1 of the ‘745 patent and implicit in each dependent claim. Synopsys proposes that the term be interpreted as a “rectangular, coarse placement region within the chip’s core area.” Magma’s proposed construction is nearly identical to Synopsys’, except it improperly omits the word “placement”: “a coarse, rectangular region within the chip’s core area.” Both the intrinsic and extrinsic evidence support Synopsys’ interpretation and show that the word “placement” cannot be omitted from the definition of the term “bucket.”

The intrinsic evidence shows that the term “placement” is a required part of the term because it is part of an explicit definition contained in the specification. “[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” Cook Biotech, Inc. v. Acellylak, 460 F.3d 1365, 1373 (Fed. Cir. 2006) (holding that the definition of a disputed claim term provided in the specification governs its meaning) (*citing Phillips*, 415 F.3d at 1316). The ‘745 Patent defines a “bucket” as follows:

“[T]he core 400 where the cells are placed is divided into ***coarse placement regions called buckets*** Each bucket 410 is a small rectangular region within the core 400.”

8 A-66 (‘745 Patent at 6:47-50) (emphasis added). By its proposed construction, Magma implicitly agrees that this is the proper definition of the term “bucket,” but then asks the Court to excise a single word – “placement.” Magma’s deletion of a word in this otherwise clear definition cannot be the correct interpretation of the term.

The explicit definition in the ‘745 Patent of a bucket as a *placement* region is completely consistent with Magma’s pre-litigation usage of the term, which should be accorded greater weight than any litigation-induced statements made by Magma or its experts in this briefing. See, e.g., Vitronics, 90 F.3d at 1585 (rejecting expert testimony regarding the meaning

of a claim and stating that sources accessible to the public in advance of litigation “are more objective and reliable guides”). For example, in its technical glossary, Magma defines a [REDACTED] REDACTED [REDACTED] See 11 A-80 (emphasis added). A 1998 internal document authored by Magma engineers states that a [REDACTED] REDACTED [REDACTED] [REDACTED] REDACTED [REDACTED] See 13 A-92 (Magma Methodology Plan) (emphasis added). Elsewhere in the same document, Magma states that [REDACTED] REDACTED [REDACTED] [REDACTED]” Id. at A-98 (emphasis added).⁶ All of these quotes show that, before the onset of this litigation, Magma considered a bucket to be a placement region.

Likewise, the word “placement” cannot be omitted because this would confuse the grammar and syntax of the patent. Magma proposes that a bucket is “a coarse, rectangular region” In Magma’s construction, the adjective “coarse” modifies the noun “region” – that is, Magma says that a bucket is a “coarse region,” rather than a “coarse placement region.” But that is not what the patent says, and is inconsistent with how Magma used the terms before the lawsuit was filed.

It is clear from the specification that the word “coarse” modifies “placement,” not “region.” The patent addresses two kinds of placement: “coarse placement” (see, e.g., 8 A-68 (10:2-3; 10:10)) and “detailed placement” (see, e.g., id. at A-67 (7:14)). When the specification uses the term “coarse placement” or “detailed placement,” it is the *placement* that is coarse or detailed, not a region or something else. This understanding is supported by Magma’s own pre-

⁶ See also 16 A-156-188 (U.S. Patent No. 6,453,446, filed by Magma on April 2, 1998). Within the section describing the placement of cells, entitled “Cell Placement,” the patent states that “each bucket holds, for example, about one hundred (100) cells,” showing that buckets here are also used as placement regions. Id. at A-179 (16:4-5).

litigation use of the same terms. Magma commonly used the terms “coarse placement” (as well as “detailed placement”) in many places before the lawsuit was filed. Magma’s own glossary defines █ REDACTED █ and █ REDACTED █ See 12 A-81-A-82. The 1998 Methodology Plan also talks about █ REDACTED █ and █ REDACTED █ See 13 A-98, A-105.

Thus, the definition of “bucket” must include the word “placement” because it is part of the explicit definition contained in the patent. Likewise, the word “placement” is necessary to preserve the syntax of the passage that contains the definition itself.

C. “Congestion Score”: Synopsys’ Construction Properly Comes From the Explicit Definition in the Specification, Whereas Magma’s Proposed Construction Differs Substantially From That Definition.

‘745 Claim Language	Synopsys’ Proposed Construction	Magma’s Proposed Construction
Congestion score (Claims 1-8)	the ratio of routing resources used so far to the total routing resources available.	a ratio measure of routing resources.

The term “congestion score” is expressly recited in claim 1 of the ‘745 patent and is implicit in all of the dependent claims. Synopsys proposes that the term be interpreted as “the ratio of routing resources used so far to the total routing resources available,” which is taken verbatim from the definition of the term in the ‘745 specification. Magma proposes that the term be interpreted more broadly than the express definition as “a ratio measure of routing resources.”

The term “congestion score” is explicitly defined in column 8 of the specification of the ‘745 patent:

“The congestion score for a bucket *is defined* as the ratio of the routing resources used so far to the total routing resources available in the bucket.”

8 A-67 at 8:33-36 (emphasis added). The patent drafter thus made it clear that this passage defines the term “congestion score.” Magma’s definition is different from and broader than this explicit definition and should therefore be rejected. See, e.g., Phillips, 415 F.3d at 1316 (definition in specification governs meaning of claim term).

During meet and confer discussions regarding this term, Magma argued that the construction of “congestion score” should be broader than this explicit definition because the definition is inconsistent with dependent claim 2. Synopsys agrees that the patent definition is inconsistent with claim 2. Claim 2, is in fact, in direct contradiction with the explicit definition in the specification and is completely unsupported by anything in the specification.⁷ Regardless, this is no reason for the Court to ignore the explicit definition of the term contained in the specification.

The difference between claim 2 and the column 8 definition is simple and stark. Wires that connect circuit elements in a chip can pass through a part of the chip (for example, a bucket, which is discussed above). See Harris Decl., ¶ 59. Because of the width and size of the wires, however, the bucket is only large enough to allow a certain number of wires to pass through. Id. The definition in column 8 says that a congestion score is the number of wires that pass through a part of a chip (“the routing resources used so far”), divided by the total number of wires that could possibly pass through (“the total routing resources available”). See id., ¶ 61. It will be a number between 0 and 1. Id. A congestion score of 0 means there are no wires, and a congestion number of 1 means that there are as many wires as there are spaces for wires. Id. In

⁷ Claim 2 recites the following: “The method of claim 1, wherein the congestion score is a ratio of a number of available wire routing spaces in a given layer of the bucket in a given direction to a total number of wire routing spaces in the given layer of the bucket in the given direction.” As is shown below, this use of “congestion score” is not the same as the definition provided 8 A-67 at 8:33-36.

other words, a large congestion score (one that is close to 1) means a lot of wires, and the circuit is more “congested.” Id. Claim 2, on the other hand, says just the opposite – a congestion score is the number of open, available spaces or tracks for wires to pass through (“available wire routing spaces”) divided by the total number of wires that could possibly pass through (“total number of wire routing spaces”). Id., ¶ 65. Using the claim 2 language, a large congestion score means *fewer* wires, and thus *less* congestion, because if there are a lot of open, available spaces for wires, the number of wires must be few. Id. Claim 2, in fact, recites a “lack of congestion” score, or an “un-congestion score,” not a “congestion score.” Id. This is the opposite of the definition in the specification. Id.

Claim 2 is also inconsistent with the ordinary, common-sense understanding of the word “congestion.” To “congest” means “[t]o overfill or overcrowd.” See 10 A-79. “Congestion” therefore refers to the degree to which a space is filled or crowded. Harris Decl., ¶ 62. Greater congestion means more filling and more crowding, not less. Id.

At this stage of discovery, Synopsys does not know why claim 2 recites this contradictory use of “congestion score” – it may well be nothing more than a simple error in claim drafting. Notably, there is no support for the use in claim 2 anywhere in the specification – there is no embodiment, figure, or statement anywhere in the patent that is consistent with claim 2. See id., ¶ 66. On the other hand, every embodiment, figure, and statement in the patent (with the exception of the language in claim 2) is consistent with the definition from column 8. See id., ¶ 63. Thus, claim 2 is invalid because of a failure to satisfy the requirements of 35 U.S.C. § 112. See, e.g., Allen Eng’g Corp. v. Bartell Indus., Inc., 299 F.3d 1336, 1349 (Fed. Cir. 2002) (in a case where a claim term contradicted the description in the specification, stating that, “[w]here it would be apparent to one of skill in the art, based on the specification, that the

invention set forth in a claim is not what the patentee regarded as his invention, we must hold that claim invalid under § 112, paragraph 2”). Although Synopsys is not asking for a determination of invalidity of this claim at the construction stage, it is clear that Magma cannot use the language of a contradictory and unsupported claim to rewrite the explicit definition found in the patent itself.

IV. CONSTRUCTION OF TERMS IN THE ‘116 PATENT

A. Overview of the Technology of the ‘116 Patent.

As discussed in the General Background, the physical design phase generally starts with a netlist – a description of the connections between the elements in the integrated circuit. See Harris Decl., ¶ 21. The physical design phase places the circuit elements in the netlist into particular locations on the integrated circuit and also determines the locations and dimensions of the wires that will connect the circuit elements. See id., ¶ 23. The final result of physical design is a graphical or pictorial description of the way the IC circuit elements and wires will actually look on the finished chip. See id. This can be sent to a semiconductor factory to make the IC commercially. See id.

The ‘116 Patent deals with a particular way to do the physical design of an integrated circuit. The examples provided in the patent relate to circuit designs that are divided into abutted portions called “blocks.” See 19 A-251 (‘116 Patent at 7:8-18). Each block has “pins” on its edges that allow it to be connected to other blocks. See id. (7:19-22). The ‘116 Patent discusses a “prior integrated circuit,” which the parties agree is an integrated circuit that has already undergone the physical design phase. See id. at A-252 (9:3-6). The physical design of this prior integrated circuit may be less than ideal. For example, the pins at the edges of the blocks may not be in the best locations. See id. (10:5-10).

A new physical design is then created, based on physical design information taken from the prior integrated circuit. See id. (9:3-6). For example, this information might be the less-than-ideal locations of the pins in the prior integrated circuit. See id. (9:7-9). This information is used to improve the physical design of the current integrated circuit that is now being designed. See id. (9:16-19). In the new physical design, the locations of the pins will end up in a more optimal place than in the prior integrated circuit. See id. (10:50-57). The purpose of the alleged invention is to avoid the problems of the prior integrated circuit by using information from that circuit to improve the physical design of the current integrated circuit. See, e.g., id. (9:16-19).

B. “Generating Said Physical Design”: Synopsys’ Proposed Construction is Consistent with the Specification.

‘116 Claim Language	Synopsys’ Proposed Construction	Magma’s Proposed Construction
generating said physical design (Claims 1-28)	producing an improved physical design for the current integrated circuit	Plain meaning – no construction necessary

The term “generating said physical design” is expressly recited in independent claims 1 and 15 of the ‘116 Patent and implicitly in the associated dependent claims (claims 2-14 and 16-28). Synopsys proposes that this term be interpreted as “producing an improved physical design for the current integrated circuit.” Magma proposes no construction for this element, but instead proposes that the jury rely only on its own understanding of the words of the claim, without reference to any intrinsic evidence.

The Federal Circuit has made it clear, however, that “[c]laims must be read in view of the specification, of which they are a part.” Phillips, 415 F.3d at 1315 (citations omitted). “[T]he person of ordinary skill in the art is deemed to read the claim term not only in

the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.* at 1313. The construction proposed by Synopsys is fully consistent with the intrinsic evidence and will help the jury understand the claim term.

The meaning of the term “generating said physical design” is clear in the context of the words of the claim and the Specification. The antecedent basis for the term “said physical design” is found in the preamble of claim 1, which states that the claim is a method “of improving a physical design of a current integrated circuit.” Thus, generating the physical design means making an improvement to the current integrated circuit.

This meaning of the term is the only one consistent with the Specification. How the patent contemplates “generating a physical design” is discussed in detail beginning in column 8, line 58, through column 10, line 57. *See, e.g.*, 19 A-251 (8:61-62) (“The physical design phase 910 generates the physical design”); *id.* at 19 A-252 (9:36-38) (same)). This section of the specification makes it clear that the alleged invention uses information from a prior integrated circuit to improve or optimize the current integrated circuit:

Thus, the software tools of the physical design phase 910 can customize the current integrated circuit ***to avoid the problems of the prior integrated circuit and to realize the benefits of the prior integrated circuit.***

19 A-252 at 9:16-19 (emphasis added).

By using physical design information . . . , the decisions made . . . will be able to reduce the problems present in the prior integrated circuit and will be able to generate solutions to overcome the problems present in the prior integrated circuit, improving the optimization of the abutted-pin hierarchical physical design process of the present invention. 19 A-252 at 9:23-31 (emphasis added).

In sum, the pin assignments generated with the use of the physical design information of the prior integrated circuit . . . were ***more optimal*** than the pin assignments generated without the use of the

physical design information of the prior integrated circuit. 19 A-252 at 10:53-57 (emphasis added).

These passages show that “generating a physical design” means avoiding, reducing, or overcoming problems in the prior integrated circuit – *i.e.*, producing an improved physical design. By contrast, the specification contains no support for generating a physical design for the integrated circuit that does not improve on the prior integrated circuit. Synopsys’ interpretation is the one that best fits the intrinsic evidence and is far preferable to Magma’s proposal to ignore this evidence and simply give the jury the bare words of the claim.

In fact, the parties’ interpretation of other claims of the ‘116 patent shows that Magma is in agreement that those claims inherently include the idea of improving the current integrated circuit. For example, claim 29 contains many of the same elements as claim 1. As can be seen from the Final Joint Claim Construction Chart, the parties have both agreed that the term “using said netlist and said physical design information” in claim 29 is to be interpreted as “using the netlist and the physical design information for the purpose of ***improving the current integrated circuit.***” This is similar to what Synopsys is proposing for the term “generating said physical design” in claim 1 and shows that both parties agree that the idea of improving the current integrated circuit is an important part of that claim. Magma has not provided any reason why the “improving the current integrated circuit” language is appropriate for claim 29 but not for claim 1.

CONCLUSION

For the reasons described above, Synopsys respectfully requests that the Court adopt the constructions proffered by Synopsys for the disputed claim terms discussed above.

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